

DRAFT

HYDRAULIC EVALUATION OF KELSO CREEK

Prepared by:

Simons Li, & Associates, Inc.
3901 Westerly Place, Suite 101
Newport Beach, CA 92660

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2.3 Topographic History

An examination of topographic maps of the region from before and after the levee was constructed indicates that aggradation has occurred within the upstream leg of the levee reach. Additionally, sediment-bearing tributary flows, transverse to the Kelso Creek levee, have resulted in significant topographic changes within the basin. With each major flood, the topography of the study region is modified. All analyses and conclusions must consider the non-steady nature of Kelso Creek Basin.

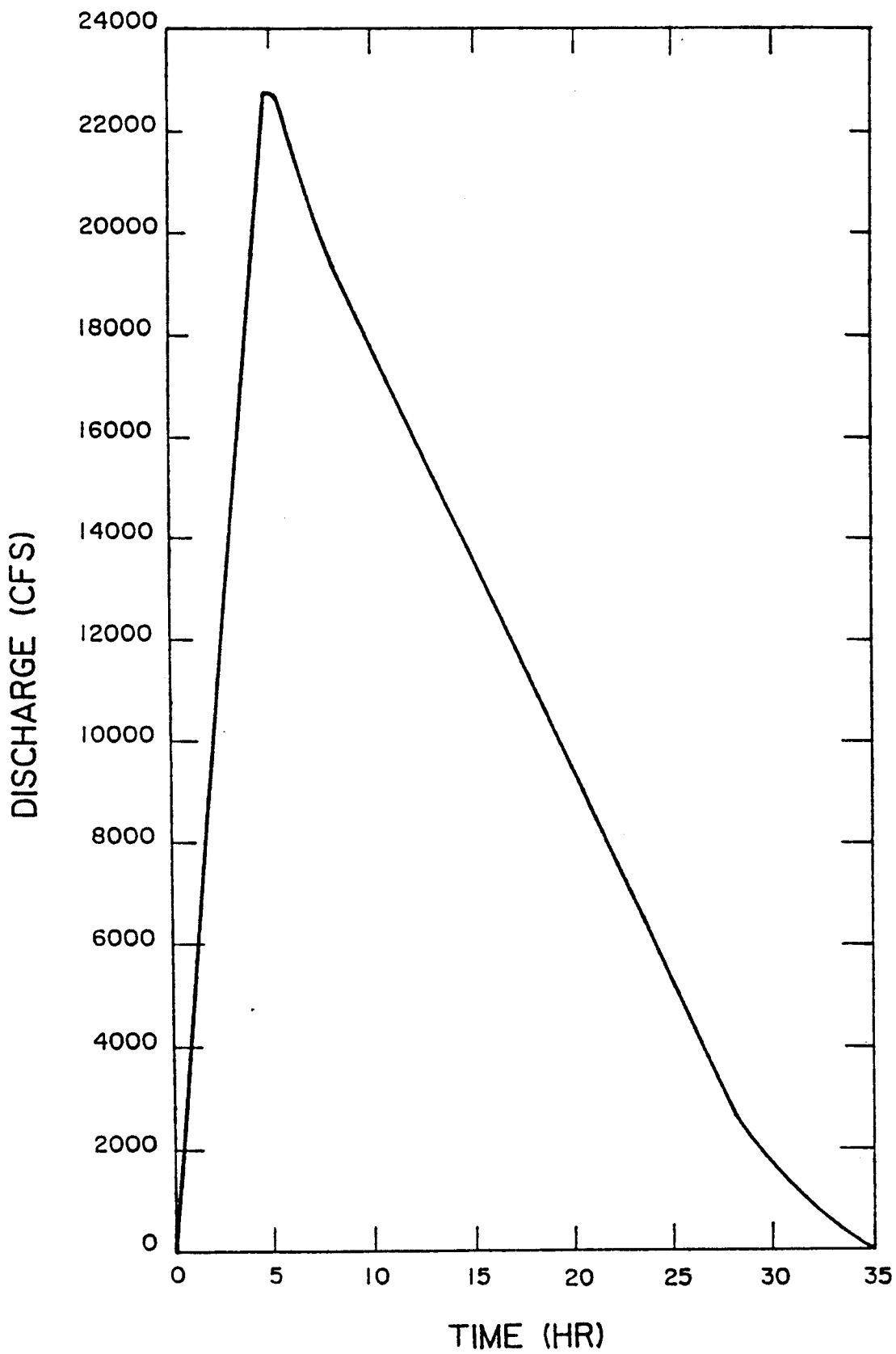
2.4 Hydrology

Design hydrographs were developed, using peak runoff values as estimated by Boyle Engineering in their report entitled "Summary of Hydrologic Analyses; Cottonwood, Erskine and Kelso Creeks," (July, 1979), and using duration/shape characteristics of the December, 1966 storm as reported by the Corps of Engineers in their January, 1979 hydrology report for the Kern River Basin.

Peak discharge values for each design flood are contained in Table 1. The developed 100-year flood hydrograph is illustrated in Figure 1. (Flood hydrographs for the 50-, 25-, 10-, and 2-year floods were estimated by scaling the 100-year hydrograph ordinates by the ratio of the respective flood's peak discharge divided by the 100-year flood peak). The total rainfall associated with the shown 100-year hydrograph is approximately 13.5 inches, assuming 3.5 inches of excess and 10.0 inches of loss. The 10.0 inches of loss is identical to that estimated by the Corps of Engineers for the December, 1966 storm.

Table 1. Kelso Creek Design Discharges

<u>Flood Event</u>	<u>Peak Discharge</u>
100-Year	22,700
50-Year	11,000
25-Year	6,400
10-Year	2,850
2-Year	350



**FIGURE 1 KELSO CREEK 100-YEAR FLOOD HYDROGRAPH
NEAR WELDON**